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Reply

We thank Dr. Carrillo and colleagues for their interest in our paper (1). They have raised concerns regarding the diagnosis of Takotsubo cardiomyopathy (TC) in our study and questioned whether our electrocardiographic (ECG) criteria accurately differentiated TC from anterior acute myocardial infarction (AMI) with left anterior descending (LAD) coronary artery occlusion distal to the first diagonal branch (D1).

Dr. Carrillo and colleagues assert incorrectly the number of patients who underwent coronary angiography (CAG). In our study (1), all patients with TC underwent CAG during hospitalization, and "emergency" CAG was performed in 25 patients (76%). Formal diagnostic criteria for TC have yet to be established, and TC was diagnosed according to the Mayo Clinic diagnostic criteria (2) in our study.

As Dr. Carrillo and colleagues stated, deviation of the ST-segment in anterior AMI is influenced by the site of the culprit lesion of the LAD coronary artery. They assert that the ECG of TC in Figure 1B, which fulfills our ECG criteria—namely, the presence of ST-segment depression in lead aVR (ST-segment elevation in lead −aVR) and the absence of ST-segment elevation in lead V_1—is typical of anterior AMI with LAD coronary artery occlusion distal to D1. However, we assume that the presence of LAD coronary artery occlusion distal to D1 alone does not result in this ECG pattern. Because lead −aVR faces the apical and inferolateral regions, ST-segment elevation in this lead would require that the LAD coronary artery has a large perfusion territory, including these regions. In addition, the absence of ST-segment elevation in lead V_1, which faces the right paraseptal region, would require occlusion of the LAD coronary artery distal not only to D1, but also to the first septal branch (S1). One can speculate that among patients with anterior AMI, those who have all of these coronary anatomical findings are relatively rare. Therefore, we believe that our ECG criteria can help to accurately differentiate TC from anterior AMI in patients who are admitted within 6 h after symptom onset. However, we agree that it might be difficult to distinguish patients with TC from some patients who have anterior AMI with distal occlusion of the LAD coronary artery, which extends to the apical and inferolateral regions, with the use of our ECG criteria alone. Further studies in larger numbers of patients are thus needed to verify our results.

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